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Notice of Allowability

Application No.

09/917,661

Examiner

John J. Tabone, Jr.

Applicant(s)

PARVATHALA ET AL.

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed on 03/17/2005.
2. ☒ The allowed claim(s) is/are 1,2,4,5,7-15,17,19-21 and 23-25.
3. ☒ The drawings filed on 30 August 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


ALBERT DECADY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

DETAILED ACTION

1. Claims 1, 2, 4, 5, 7-15, 17, 19-21, and 23-25 are now pending in this application. Claims 1, 2, 4, 7, 8, 11-14, 17, 19-21, 23, and 24 are amended. Claims 3, 6, 16, 18, 22, and 26-38 are canceled, and no claims are added.

Response to Arguments

2. Applicant's arguments, see Applicant's Remarks, filed March 17, 2005, with respect to pending claims 1, 2, 4, 5, 7-15, 17, 19-21, and 23-25 have been fully considered and are persuasive. The Examiner has withdrawn the rejection of claims 1, 2, 4, 5, 7-15, 17, 19-21, and 23-25.

Allowable Subject Matter

3. Claims 1, 2, 4, 5, 7-15, 17, 19-21, and 23-25 are allowed.

The following is an Examiner's Statement of Reasons for Allowance:

The present invention pertains generally to the manufacture and functional testing of complex devices such as microprocessors, and more particularly, relates to a functional random instruction testing (FRIT) method for on-chip generation and application of functional tests. The claimed invention (claim 1 as representative, claim 1 is the broadest of the independent claims) recites features such as: "A functional random instruction testing (FRIT) method for testing a microprocessor, comprising: converting a FRIT kernel into kernel test patterns and storing the kernel test patterns in

a tester memory; loading, at the tester, the kernel test patterns stored in the tester memory onto an on-board memory of the microprocessor to form the FRIT kernel in the on-board memory of the microprocessor, wherein the FRIT kernel includes a software built-in self-test engine (SBE); executing by the microprocessor and from the on-board memory of the microprocessor, software within the FRIT kernel to repeatedly generate and execute functional tests to test the microprocessor; and comparing, at the tester, a test result of the functional tests with an expected test result to check for manufacturing defects”.

The prior arts of record teach a software-based self-testing methodology for processors which uses a software tester embedded in the processor memory as a vehicle for applying structural tests; Chen et al., “Software-based self-testing methodology for processor cores” is one example of such prior arts. The prior arts of record, however, fail to teach, singly or in combination, converting a FRIT kernel into kernel test patterns, which is a test format of the software built-in self-test engine (SBE), and storing the kernel test patterns in a tester memory; loading, at the tester, the kernel test patterns stored in the tester memory onto an on-board memory of the microprocessor to form the FRIT kernel in the on-board memory of the microprocessor, wherein the FRIT kernel includes a software built-in self-test engine (SBE). The Examiner agrees with the Applicants arguments with regard to this feature in view of the arts of record; therefore, the Examiner favors the allowance of claims 1-7 and 9-20. Any comments considered necessary by applicant must be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably

accompany the Issue Fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

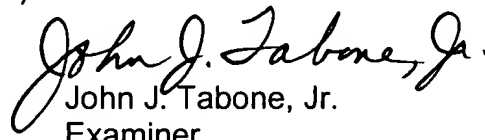
- a. Shen et al., "Native Mode Functional Test Generation for Processors with Applications to Self Test and Design Validation", IEEE 1998. Shen teaches a versatile functional test generation methodology for microprocessors using generated assembly instruction sequences.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Tabone, Jr. whose telephone number is (571) 272-3827. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John J. Tabone, Jr.
Examiner
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ALBERT DECADY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100
